

CLAIMS

1 - Device (10) of installation of signalization spheres and verification of the status of lightning-rod cable (110), characterized by the fact of comprehending a supporting structure (12), consisting of two bases equidistant and parallel one another (14, 16), linked one another by axial segments (18, 20, 22 and 24), the mentioned axial segments (20 and 24) serving as supports for the activating engines (26 and 28) respectively, an earthing and idler tension system comprised of a structure (30) formed by two parallel rods (32 and 34), which move in the horizontal direction internally on axis (22) and inked to two bases equidistant and parallel one another (14, 16), linked one another by axial segment (36), and featuring in its lower extremity slots (38) for introduction of an axis (40) of a wheel (42), said first axial segment (22) being equipped in its intermediate portion with a threaded rod (44), which links in its lower extremity to the said axial segment (22) of said bases (14, 16), equipped in its upper side with a crank (48) and spring (50), a fork (52) articulated to the outer part of said bases (14, 16), where to are projected the feeding system (54), an inclined structure (60) consisted of two bases equidistant one another (62 and 64) linked one another by four axial segments (66, 68, 70 and 72), the latter acting as a support for the tightening and loosening tool (74), presents in its terminal portion a coupling prism (56), and also suspended both internally and externally by bars (76, 78 and 80, 82), respectively, and equidistant one another by axial segments (70 and 68, 18, 84), nothing that in segment (84) in its intermediate portion, accommodates the cupping glass (86), and, also in the portion posterior to parallel bases (14 and 16), the boxes of the circuits of reception of telecommands (88) are projected.

2 - Device (10), according to claim 1, is characterized by the fact that coupled to axis (84) and rod (90), respectively, are provided: one cupping glass (86), which is located on the anterior portion of device (10),

which comes to adhere to the outer surface of the signalization sphere by contact suction, and one video camera (106) for the follow-up of operations of installations of the signalization sphere, as well as to effect a sweeping on the lightning rod cables (110) for the sake of maintenance.

5

3 - Device (10), according to claim 1, is characterized by the fact that the earthing and idler tension array, also assembled with the feeding system (54) fitted into pivot (46), operates as a pendulum, being responsible for the whole balance of the array.

10

4 - Device (10), according to claim 1, is characterized by the fact that said wheel (42) is produced from a metallic conductive material and all the other components are produced from isolating material.

15

5 - Device (10), according to claim (1), is characterized by the fact that the tension of the said feeding system (54) is transferred to activating engines (26, 28) and to said tightening and loosening tool (74) through control boxes (88) by means of parallel wire.

20

6 - Device (10), according to claim (1), is characterized by the fact that in the metallic conductive wheel assembly (42) in slot (38) to provide the earthing of device (10), tension control is also provided, observing that, in order to surpass sharp-edged acclivities and declivities, it is necessary, in such case, to operate crank (48), which, through vertical axis (44), bent over fixed axis (20), suspends the entire mobile array comprised of mobile rods (32 and 34) in the mobile axis (36) fixed in its posterior portion and tightening the wheel (48) over lightning rod cable (110), where spring (50) of this array operates as a dampener.

25

30

7 - Also, as can be seen from Figures 1 and 2, it is provided with a sphere for line signalization, designated generally by numeric reference

(100), comprising two semi-spheres (102, 104), equipped in their lateral terminals with plastic projections (108), which, when united, form a duct for the groove in the rod lightning cable (110), a vertical axis (112) equipped in its superior extremity with an eyelet (114) inferiorly linked to a support (118) of the semi-sphere (104), said vertical axis connected to a walrus-type connector (120).

8 – Special sphere, according to claim 7, characterized by the fact that if the movement of the said tightening and loosening tool (74) is made in the tightening direction, the said walrus-type connector (120) will be dislocated in the closing of the said lateral spacing (116) existing between the said two semi-spheres (102, 104) that form the said perfected signalization sphere (100) and, consequently, the tightening of the said walrus-type connector (120) on the said rod lightning cable (110).

9 – Method for the installation of signalization spheres (100) on energized transmission lines, characterized by the fact of comprising the following stages:

- Placement of the signalization sphere (100) through lateral spacing (116) existing between the two semi-spheres (102, 104) on the lightning rod cable (110), until such lightning rod cable (110) is rather accommodated than stuck to walrus-type connector (120), as, by that way, signalization sphere (100) will be available to be transported without a risk of a fall along said lightning rod cable (110);
- Placement of device (10) upstream, in relation to the said signalization sphere (100), by placing the device over the lightning rod cable, which will be in contact with the two activation engines (26, 28) of the said installation device (10), by placing the wheel (42) in the slot (38) through the axis groove (40), so that, this way, the earthing of device (10) is effected, as the wheel is constituted by metallic conductive material and all the other components of the device are made of an isolating material;

- Groove of fork (52) in the external part of bases (14, 16) through a pivot (46), and the feeding system (54);

- coupling of the extremity of coupling prism (56) to horizontal axis (112) of the sphere (100) in the extremity of eyelet (114) to device (10);

5        - activation of device (10) by a remote-control transmitter by means of engines (26, 28) of front/rear activation, conducting it towards the due site of the installation of the sphere (100);

10        - rotation in the tightening direction, through remote control, in the objective site of the installation, of the tightening and loosening tool (74), which tightening affecting eyelet (114) of the extremity of vertical axis (112), providing the closure of the walrus-type connector (120) over the lightning rod cable (110).

15        10 – Method, according to claim 9, characterized by the fact that the earthing and idler tension array of the said device (10), also assembled with its array with the feeding system (54) assembled in the pivot (46), acts as a pendulum, being responsible for the whole balance of the array.

20        11 – Method, according to claim 9, characterized by the fact that the said wheel (42) is produced from a metallic conductive material and all the other components are produced from isolating material.

25        12 – Method, according to claim 9, characterized by the fact that the voltage of the said feeding system (54) is transferred towards the activation motors (26, 28) as well as to the said tightening and loosening tool (74) by means of parallel wires.

SUMMARY

Patent of Invention for "DEVICE FOR THE INSTALLATION  
OF SIGNALIZATION SPHERES ON LIGHTNING ROD CABLES  
5 OF TRANSMISSION LINES, AND METHOD FOR THE  
INSTALLATION OF SIGNALIZATION SPHERES ON ROD  
LIGHTNING CABLES OF TRANSMISSION LINES USING SAID  
DEVICE."

10 The present invention refers to a device (10) of installation of  
signalization spheres and verification of the status of lightning rod cable  
(110), comprising a supporting structure (12), consisting of two bases  
equidistant, parallel to each other 14, 16, linked each other by axial  
segments (18, 20, 22 and 24) , said axial segments (20 and 24) acting as  
15 supports for activation engines (26 and 28), respectively, an earthing and  
idler tension system comprising a structure (30) formed by two parallel  
rods (32 and 34) that move along the vertical direction linked to two bases  
equidistant and parallel to each other (14, 16) in its intermediate portion  
through axis (22), in its superior extremity through axis (36) and presenting  
20 in its inferior extremity slots (38) for the introduction of an axis (40) of a  
wheel (42), said first axial segment (22) being equipped in its intermediate  
portion with a threaded rod (44) which is linked it its inferior extremity to  
the said axial segment (22) of said bases 14, 16, superiorly equipped with a  
crank (48) and spring (50), a fork (52) articulated over pivot (46) to the  
25 external part of said bases (14, 16) whereto are projected the feeding  
system (54), an inclined structure (60) consisting of two bases equidistant  
to each other (62 and 64) linked to each other by four axial segments (66,  
68, 70 and 72), the latter acting as a support for the tightening and  
loosening tool (74), presents in its terminal portion a coupling prism (56) ,  
30 still suspended internally and externally by bars (76, 78 and 80, 82)  
respectively and equidistant to each other by the axial segments (70 and 68,

18, 84), noting that on segment (84)<sup>16</sup> in its intermediate portion, accommodates cupping glass 86, and still in the posterior part the parallel bases (14 and 16) are projected the circuits of reception of telecommands (88).

5

Moreover, through the present invention a method for the installation of signalization spheres (100) on energized transmission lines is provided.